9.2.6.7 Calculation of the Hysteresis:

SAMSON VALVE SIZING SVSS specialist can check the hysteresis of the valve actuator system. A value which plays an important role for the total controllability.

As a rule of thumb the hysteresis of a valve system without positioned should be < 5 % and with a positioner type of medium quality < 15%.

For modern high quality positioners in the process industry SVSS the software generates a warning if the value is > 30%.

$$\text{Hysteresis}\,\% = \frac{2 \cdot F_w}{10 \cdot A \cdot \left(p_{st100} - p_{st0}\right)} \cdot 100 < 30\,\% \qquad (9\text{-}14)$$

If Hysteresis > 30% increase actuator stiffness: $A \cdot (p_{st100} - p_{st0})$